

## EXHIBIT A

Area of Technology Application to: Etch .

0007354

## INVENTION ALERT FORM

1. Today's date: &lt;DATE&gt;

REC'D &lt;DATE&gt;

2. Title of Invention: Etching of OSG(Organic doped Silicate Glass) using either CH<sub>3</sub>F/CF<sub>4</sub>/N<sub>2</sub>/Ar or CHF<sub>2</sub>/CF<sub>4</sub>/N<sub>2</sub>/Ar mixture

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**7. Describe the invention, preferably the reference to drawings.**

In order to form the trenches in low-k dual damascene applications, proper chemistry for plasma etching is important. The drawback of such process is that the film has high amount of CH<sub>3</sub> in it to control its k value. As the etch process is done using usual fluorocarbon such as CF<sub>4</sub>/CHF<sub>3</sub> or C<sub>4</sub>F<sub>6</sub>, several issues are brought up by the dopant.

This invention proposes the use of Hydro-fluorine with N<sub>2</sub>/CF<sub>4</sub> chemistry at certain pressure with additives, CO or Ar. Normal dielectric etch chemistries such as CHF<sub>3</sub>, C<sub>4</sub>F<sub>8</sub>, and C<sub>4</sub>F<sub>6</sub> produce severe etch stop or low selectivity to photoresist. With this chemistry better control for etch stop and selectivity to PR. By varying either CH<sub>x</sub>F<sub>y</sub>/CF<sub>4</sub> or CH<sub>x</sub>F<sub>y</sub>/N<sub>2</sub> ratio, the selectivity to photoresist can be varied sufficiently for the film to be used as both via and trench for low-k Dual Damascene structure.

8. List each feature of the invention which you consider novel and non-obvious. Describe the advantages of each novel feature in comparison with the state-of-the-art approaches which are closest to your invention.

(a) The use  $\text{CH}_2\text{F}_2/\text{N}_2/\text{CF}_4/\text{Ar}$  and  $\text{CH}_3\text{F}/\text{N}_2/\text{CF}_4/\text{Ar}$  at OSG etching for dual damascene structure.

(b)  $\text{CH}_4$  instead of  $\text{CH}_x\text{F}_y$

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